CLAIMS

What is claimed is:

1. A method for using an RF tag, comprising the steps of;
transmitting a first data set to a tag at a first frequency, and
transmitting second data set to the tag at a second frequency.

2. The method of claim 1, wherein;
the first data set comprises;
a command for writing data, and
data for storing in the tag.

3. The method of claim 1, wherein;
the second data set comprises;
a command for reading data from the tag.

4. The method of claim 3, further comprising the step of;
reading data from the tag at the second frequency.

5. The method of claim 1, wherein;
the first instance of transmitting data and the second instance of
transmitting data occur a separate locations.

6.   An RF tag programmer, comprising;

a digital controller,

a radio frequency source controlled by the digital controller,

a modulator controlled by the digital controller for modulating radio

5   frequency energy generated by the radio frequency source, and

an antenna coupled to the output of the modulator for transmitting modulated radio frequency energy to an RF tag, whereby;

the RF tag programmer may transmit modulated radio frequency energy at a plurality of radio frequencies.

10

7.   The RF tag programmer of claim 6, wherein;

the RF source is tunable to a plurality of radio frequencies.

8.   The RF tag programmer of claim 6, wherein;

15   the RF source comprises a plurality of RF sources.

9.   The RF tag programmer of claim 8, further comprising;

a plurality of modulators coupled to the plurality of RF sources.

20   10.   The RF tag programmer of claim 9, wherein;

at least one of a set comprising a coupled RF source and modulator is installable as a module.

11.   The RF tag programmer of claim 6, further comprising;

25   a printer for producing printed indicia on the RF tag.

12.   An RF tag, comprising;

a first digital controller,

a first radio frequency communication module coupled to the digital controller, and

5   a first antenna coupled to the radio frequency communication module,

whereby the RF tag may receive data at a plurality of radio frequencies.

10   13.   The RF tag of claim 12, wherein;

the digital controller and the radio frequency communication module are formed on a common silicon die.

14.   The RF tag of claim 12, wherein;

15   the RF tag is a passive RF tag.

15.   The RF tag of claim 12, further comprising;

a label substrate for receiving printing,

the substrate also providing a surface for mounting the digital

20   controller, the radio frequency communication module, and the antenna.

16.   The RF tag of claim 12, further comprising;

a second radio frequency communication module coupled to the first digital controller, and

25   a second antenna coupled to the second radio frequency communication module.

17.   The RF tag of claim 12, further comprising;

a second digital controller,

a second radio frequency communication module coupled to the second digital controller, and

5   a second antenna coupled to the second radio frequency communication module.

18.   The RF tag of claim 12, wherein;

the antenna comprises;

10   a first section responsive to magnetic coupling, and

a second section responsive to carrier wave coupling.

19.   The RF tag of claim 12, wherein;

the antenna comprises;

15   a first section responsive to near field coupling, and

a second section responsive to far field coupling.

20.   The RF tag of claim 12, wherein;

the antenna comprises;

20   a data transmission element, and

a programming stub.

21.   The RF tag of claim 12, wherein;

the antenna comprises;

25   a first element responsive to a first frequency, and

a second element responsive to a second frequency.

22. The RF tag of claim 21, further comprising

a conversion circuit coupled between the first antenna element and the second antenna element, whereby;

the conversion circuit converts the second frequency to the first

5   frequency.

23. An apparatus for printing and programming intelligent labels, comprising;

a print engine having a media path, and

10   an RF tag programmer mounted thereto,

whereby media comprising intelligent labels may be programmed and printed with indicia, and wherein;

the RF tag programmer is capable of transmitting RF energy at a plurality of frequencies.

15

24. The apparatus of claim 23, wherein;

the print engine is a thermal transfer print engine.

25. The apparatus of claim 23, wherein;

20   the print engine is a flexographic printing press.

26. The apparatus of claim 23, further comprising;

a media supply for holding a length of intelligent labels prior to printing.

25

27. A method for writing data to RF tags, comprising;

programming one or more of a first set of RF tags in a programmer,

removing a media supply of the first set of RF tags from the

programmer,

5   installing a second set of RF tags in the programmer, and

programming at least one of the second set of RF tags, wherein;

the first set and second set of RF tags use different communication

interfaces.

10 28. The method of claim 27, wherein;

the first set of RF tags uses a first communication protocol, and

the second set of RF tags uses a second communication protocol.

29. The method of claim 27, wherein;

15   the first set of RF tags uses a first communication frequency, and

the second set of RF tags uses a second communication frequency.

30. The method of claim 27, further comprising;

printing indicia on a surface of said first one or more RF tags with a

20 print engine.

31. The method of claim 30, wherein;

the print engine comprises a thermal print engine.

25 32. The method of claim 30, wherein;

the print engine comprises a flexographic printing press.

33.   The method of claim 27, wherein;

switching the programmer from the first communication interface to the second communication interface happens substantially without overt user intervention.